

Application No.: 10/552,886

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AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) A method of loading a self-expanding stent into a delivery sheath, ~~comprising; in which the stent in a radially confined delivery configuration is advanced axially into the sheath for delivery to a stenting site in which the sheath is withdrawn to release the stent for radial expansion at the site characterized by the steps of~~
  - i) providing said stent as a covered stent having a stent matrix with surfaces defining luminal and abluminal envelopes spaced apart by a stent wall thickness, a covering material bonded to the matrix lying radially inside the luminal envelope;
  - ii) providing a stent pusher ~~within the in a lumen of defined by~~ the stent, the stent pusher having ~~radially outwardly extending~~ protrusions distributed along the length of the stent lumen;
  - iii) compressing the stent radially inwardly until the protrusions deform the covering material, ~~yet remain radially inside but do not reach radially outwardly as far as the luminal envelope[L]; and~~
  - iv) advancing the compressed stent into the sheath by imposing an endwise force on the stent pusher so that the covering material transfers the pushing force from the protrusions of the stent pusher to the stent matrix to advance the stent into the sheath.
2. (Original) Method as claimed in claim 1, including the step of arranging the protrusions helically, so that the stent pusher can be withdrawn from the lumen of the stent, inside the sheath, by unscrewing the stent pusher relative to the stent lumen.

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3. (Currently amended) A delivery system including a self-expanding stent within in a percutaneous transluminal delivery catheter that includes a sheath that withdraws proximally to release the stent at a stenting site, ~~and a pusher within the sheath that retains the stent at the site during withdrawal of the sheath, comprising;~~ characterised in that

- i) the a pusher within the sheath that extends along the lumen of the stent and has radially outwardly extending protrusions distributed along the length of the stent lumen;
- ii) the stent is being a covered stent having a matrix with surfaces defining luminal and abluminal envelopes spaced apart by a stent wall thickness, a covering material bonded to the matrix lying radially inside the luminal envelope; and
- iii) the stent being positioned over the protrusions such that the protrusions deform the covering material yet remain radially inside but do not reach radially outwardly as far as the luminal envelope.

4. (Currently amended) The delivery system Stent as claimed in claim 3, wherein the stent matrix ~~is-of~~ comprises metal and the covering ~~is-of~~ comprises expanded polytetrafluoroethylene.

5. (Currently amended) The delivery system Stent as claimed in claim 3 [[or 4]], wherein the stent matrix is apertured and the covering is bonded to an abluminal stent covering layer through the apertures.

6. (Currently amended) The delivery system Stent as claimed in claim 3[[, 4 or 5]], wherein the stent matrix is formed from a nickel-titanium shape memory alloy.

7. (Currently amended) The delivery system Stent as claimed in claim 3 ~~any one of claims 3 to 6~~, wherein said protrusions are the turns of a spiral.

8. (Currently amended) The delivery system Stent as claimed in claim 3 ~~any one of claims 3 to 7~~, with a tapered distal tip on said sheath.

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9. (Currently amended) The delivery system Stent as claimed in claim 3 any one of claims 3 to 7, with a tapered distal tip on said pusher, distal of said sheath.

10. (New) A delivery system, comprising:  
a self-expanding stent having a wall and a luminal and abluminal wall surface, a first covering layer positioned on at least the luminal wall surface;  
an outer sheath having a distal end configured to receive and maintain the stent in a reduced diameter delivery configuration; and  
an inner catheter having a distal end positioned within a lumen of the stent, the inner catheter including radially outwardly extending protrusions along the distal end that extend into the covering without intersecting a plane along the luminal wall surface.

11. (New) The delivery system according to claim 10, further comprising a second covering layer on the abluminal surface of the stent, wherein the first covering layer is bonded to the first covering layer through apertures in the stent wall.

12. (New) The delivery system according to claim 11, wherein the first and second covering layers are comprised of ePTFE.

13. (New) The delivery system according to claim 10, further comprising a plurality of markers.

14. (New) The delivery system according to claim 13, wherein the markers are arranged circumferentially about a proximal and distal end of the stent.

15. (New) The delivery system according to claim 10, wherein the protrusions are formed by a wire arranged helically about the inner catheter.

16. (New) The delivery system according to claim 15, wherein the inner catheter is comprised of stainless steel, and the wire is bonded to the inner catheter.

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17. (New) The delivery system according to claim 10, wherein the outer sheath includes a tapered distal end.

18. (New) The delivery system according to claim 10, wherein the stent is cut from a nickel-titanium tube.

19. (New) A method of loading a self-expanding stent into a delivery sheath, comprising:

providing a self-expanding stent having a covering layer positioned on a luminal wall surface;

providing a stent pusher including protrusions on a distal end thereof; radially compressing the stent over the protrusions such that the protrusions deform the covering layer but do not intersect a plane along the luminal wall surface; and

inserting the inner catheter and stent into the sheath.

20. (New) The method according to claim 1, wherein the protrusions are arranged helically about the distal end of the stent pusher, further comprising the step of withdrawing the stent pusher by unscrewing it from the covering layer.

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